TSCALE

TR-I series

Wireless Crane Scale

User's guide

UGTR-E1.02

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SECTION 1 INTRODUCTION

The TR-I series of wireless crane scale provides an accurate, fast and versatile series of general purpose weighing scale with units conversion and division shift functions.

All the keypads are sealed, color coded membrane switches and the displays are large easy to read liquid crystal type displays (LCD). The LCD's are supplied with a backlight.

All units include automatic zero tracking, units conversion, audible alarm for pre-set weights, and an accumulation facility that allows the individual weights to be stored and recalled as an accumulated total.

The crane scale is firm and durable, and also it has several capacity could be selected: 1t/2t/3t/5t/10t.

SECTION 2 SPECIFICATIONS

Model	TR-I
Resolution	1/3,000
Capacity	1t/2t/3t/5t/10t
Interface	RS-232 Output Optional
Stabilisation Time	1 Seconds typical
Operating Temperature	0°C - 40°C / 32°F - 104°F
Power supply (external)	115 / 230 Vac, 120 / 240 Vac, 50/60Hz, 10 watts
Calibration	Automatic External
Display	6 digits 22mm LCD display, attached backlight
Housing	Indicator: ABS Plastic, Crane scale: Stainless Steel
Zero range	0mV~5mV
Signal input range	0~15mV
ADC	Sigma delta
Internal counts	600,000
ADC update	Max 60 times /second
Load cell drive voltage	Max 5V/150mA
Load cells	Up to four 350 ohms cells

SECTION 3 INSTALLATION

GENERAL INSTALLATION

The scales should be sited in a location that will not degrade the accuracy.

Avoid extremes of temperature. Do not place in direct sunlight or near air conditioning vents.

Avoid unsuitable tables. The tables or floor must be rigid and not vibrate. Do not place near vibrating machinery.

Avoid unstable power sources. Do not use near large users of electricity such as welding equipment or large motors.

Avoid high humidity that might cause condensation. Avoid direct contact with water. Do not spray or immerse the scales in water.

Avoid air movement such as from fans or opening doors. Do not place near open windows.

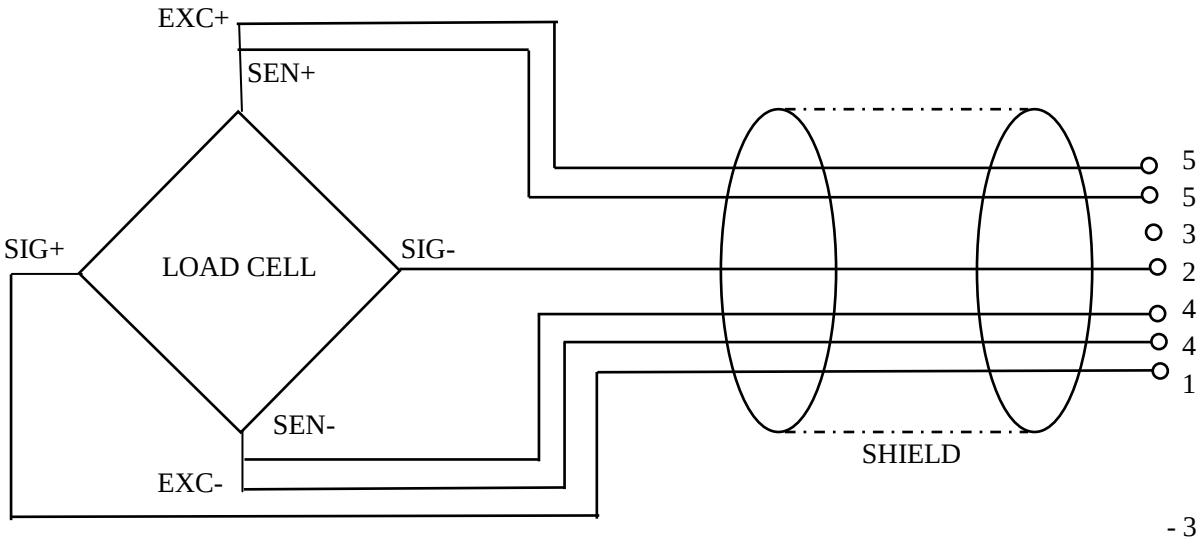
Keep the indicator clean.

Do not stack material on the scales when they are not in use.

INSTALLATION OF TR SERIES

Please make the load cell connector from the load cell follow the drawing below
Attach the AC power adapter to the connector on the back of the indicator.
If you use TR for a platform scale, you can use attached indicator bracket, this indicator bracket is design for 38mm pole.

Load cell connect as below(5pin air connecter)



SECTION 4 KEY DESCRIPTIONS

Zero

Set the zero point for all subsequent weighing. The display shows zero.(only when the weight is less than 10% capacity)

Tare the scale. Stores the current weight in memory as a tare value, subtracts the tare value from the weight and shows the results. This is the net weight. Entering a value using the keypad will store that value as the tare value. (only when the weight is large than 10% capacity)

A secondary function ↵, of "Enter" key when setting parameters or other functions.

DIV

Change the division of the scale. This scale has two division (high and low) could be selected,

A secondary function ↑, of incrementing the active digit when setting a value for parameters or other functions.

HOLD

reading lock key, use this key to lock reading, in calibrate mode, use this key to change decimal point.

Secondary function ▶ , In the setting mode, this key used to move active digits right.

M+

To print the results to a PC or printer using the optional RS-232 interface. It also adds the value to the accumulation memory if the accumulation function is not automatic.

Secondary function (**C or** ◀) , is to act as a clear key or to move active digits left when setting values for parameters or other functions.

UNIT or U

Press this key to select the weight unit. Move the active digit left when setting values for other functions.

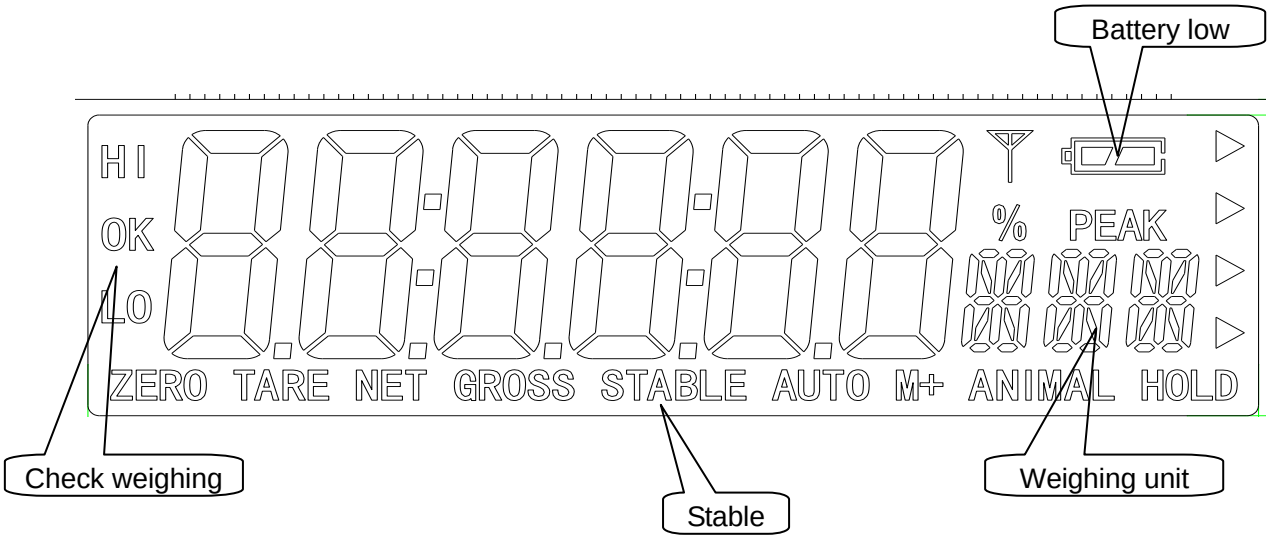
Secondary function (ESC) , is to return to normal operation when the scale is in a parameter setting mode.

ON/ OFF

Turn on or off the power.

SECTION 5 DISPLAYS

The LCD display will show a value and a unit to the right of the digits.
In addition there are labels for TARE, GROSS weight, Zero and for Low battery



SECTION 6 OPERATION

NOTE: In order to save energy of the battery to work for longer time, please turn off the power switch in the crane scale only if you do not use the scale. When the battery uses up, please charge it immediately.
Method: Open the crane scale, you will find a power switch beside the battery. Please turn on/off it when you want/do not want to use the scale. When you want charge the battery, please insert the adaptor into the charge hole on the crane scale.

6.1 Zeroing the Display

You can press the **ZERO** key at any time to set the zero point from which all other weighing and counting is measured, within 10% of power up zero. This will usually only be necessary when the platform is empty. When the zero point is obtained the display will show the indicator for zero.

The scale has an automatic rezeroing function to account for minor drifting or accumulation of material on the platform. However you may need to press the **ZERO** key to rezero the scale if small amounts of weight are shown when the platform is empty.

6.2 Taring

Zero the scale by pressing the **ZERO** key if necessary. The zero indicator will be on.

Place a container on the platform, a value for its weight will be displayed.

Press the **ZERO** key to tare the scale (only when the weight is large than 10% capacity). The weight that was displayed is stored as the tare value and that value is subtracted from the display, leaving zero on the display. The "TARE" indicator will be on. As product is added only the weight of the product will be shown. The scale could be tared a second time if another type of product was to be added to the first one. Again only the weight that is added after taring will be displayed.

When the container is removed a negative value will be shown. If the scale was tared just before removing the container this value is the gross weight of the container plus all product that was removed. The zero indicator will also be on because the platform is back to the same condition it was when the **ZERO** key was last pressed.

NOTE: When the weight is less than 10% capacity, this key function is zero, When the weight is large than 10% capacity, this key function is tare.

6.3 Weighing a sample

To determine the weight of a sample first tare the empty container then place the

sample in the container. the display will show the weight and the units of weight currently in use.

6.4 Accumulated Total

6.4.1 Note

The scale can be set to accumulate manually by pressing the **M+** key. See the PARAMETERS Section for details of selecting the method using function "FS P rt". The accumulation function is only available when weighing.

Please note before every accumulate operate, scale need return to zero, and only press **M+** key when stable, when weight less than 20d, accumulate operate will be invalid.

6.4.2 Accumulate operate

The weight displayed will be stored in memory when the **M+** key is pressed and the weight is stable.

The display will show "ACC 1" and then the total in memory for 2 seconds before returning to normal. (after do accumulate operate, M+ indicator will turn on) If the optional RS-232 interface is installed the weight will be output to a printer or PC.

Remove the weight, allowing the scale to return to zero and put a second weight on. Press the M+ key, the display will show "ACC 2" and then the new total.

Continue until all weights have been added.

*Note: after you change weighing unit, accumulate value will be clear.

6.4.3 Memory recall

To view the totals in memory press **M+** key in zero point (ZERO indicator on).

6.4.4 Memory clear

To clear the memory, just press **UNIT** key

SECTION 7 PARAMETERS

The scale has 8 parameters that can be set by the user plus a method of entering the calibration section.
Turn off the power if you are using the scale. then turn on the power, press the **UNIT** key at the same time during self-checking.

Display shows "Pn---", waiting for input password, Input password, **HOLD** key; **UNIT** key and **ZERO** key. Then press the **ZERO** key to enter in.

The display will show the first function, "F0 d iu".
Pressing the **DIV** key will cycle through the other functions.
Pressing **ZERO** will allow you to set the function. It may be necessary to either use **DIV** or set a value using the **HOLD** key to move the active digit and then using the **DIV** key to increment a digit, followed by the **ZERO** key to enter the value. Use the **UNIT** key to leave a parameter unchanged.

For example when the display shows "F0 d iu", then press the **DIV** key to select "F 1 A20", press the **ZERO** key to begin.

The display will show "A2 05d", press the **ZERO** key to ensure, or press the **DIV** to the next parameter. When you select a suitable value, press the **ZERO** key to ensure.

After pressing the **ZERO** key to set a value, use the **DIV** key to continue to the next parameter and set it as needed.

When all digits have been set press the **ZERO** key to store the value. The display will go back to the parameter just set, Advance to another parameter if needed or press the **UNIT** key to return to weighing.

FUNCTION MENU SETTINGS

<table>
<tr><th>Function</th><th>description</th><th>Defult value</th></tr>
<tr><td>F0 d iu</td><td>Set the division
Lou and HIGH
Detail information as below
<table>
<tr><th>capacity</th><th colspan="3">d (low division)</th><th colspan="3">d (high division)</th></tr>
<tr><td>1000kg</td><td>2kg</td><td>1kg</td><td>0.5kg</td><td>0.5kg</td><td>0.2kg</td><td>0.1kg</td></tr>
<tr><td>2000kg</td><td>5kg</td><td>2kg</td><td>1kg</td><td>1kg</td><td>0.5kg</td><td>0.2kg</td></tr>
<tr><td>3000kg</td><td>10kg</td><td>5kg</td><td>2kg</td><td>2kg</td><td>1kg</td><td>0.5kg</td></tr>
<tr><td>5000kg</td><td>10kg</td><td>5kg</td><td>2kg</td><td>2kg</td><td>1kg</td><td>0.5kg</td></tr>
<tr><td>7500kg</td><td>20kg</td><td>10kg</td><td>5kg</td><td>5kg</td><td>2kg</td><td>1kg</td></tr>
<tr><td>10000kg</td><td>20kg</td><td>10kg</td><td>5kg</td><td>5kg</td><td>2kg</td><td>1kg</td></tr>
<tr><td>15000kg</td><td>50kg</td><td>20kg</td><td>10kg</td><td>10kg</td><td>5kg</td><td>2kg</td></tr>
</table></td><td>Low</td></tr>
</table>

F 1 AZ0	Zero tracking AZ 0.5d, AZ 1d AZ 2d, AZ 4d	AZ 2d
F2 CAP	Capacity select 1000kg 2000kg 3000kg 5000kg 7500kg 10000kg 15000kg	5000kg
F3 bt	Set backlight bK AU bK on bK oFF	BK AU
F4 inP	Show internal count	
F5 Unt	Select kg on (turn on unit kg) oFF(turn off unit kg) lb on (turn on unit lb) oFF(turn off unit lb) tj on (turn on unit tj) oFF(turn off unit tj) hj on (turn on unit hj) oFF(turn off unit hj)	
F6 oFF	Auto turn off time oFF 0 min turn on all the times oFF 5 min turn off auto after 5 minutes oFF 10 min turn off auto after 10 minutes oFF 15 min turn off auto after 15 minutes oFF 30 min turn off auto after 30 minutes	OFF 0
F7 Prt	Select print out format Cont : continue send (mostly use in computer communition) LP-50: use LP-50 printer AUTO Prt 1 print out format 1 Prt 2 print out format 2 Prt 3 print out format 3 Prt 4 print out format 4 Prt 5 print out format 5	Auto
F8 CAL	calibration UnLoad→select the calibration weight→Load→complete	
F9 bd	Baud value Select 1200/2400/4800/9600	9600
F 10 Gru	Gravity value.	
F 11 LAG	Language, select(English/Chinese)	English

SECTION 8 BATTERY OPERATION

The weighing indicator can be operated from the battery if desired. The battery life is approximately 35 hours.

When the battery needs charging a symbol on the weight display will turn on. The battery should be charged when the symbol is on. The scale will still operate for about 10 hours after which it will automatically switch off to protect the battery.

To charge the battery simply plug into the mains power. The scale does not need to be turned on.

The battery should be charged for 12 hours for full capacity.

In the LCD display has a battery indicator to indicate the status of battery charging. When the scale is plugged into the mains power the internal battery will be charged. When turn on the indicator, if the battery indicator is full then the battery has a full charge. If it is half then the battery is nearly discharged and empty indicates the battery should be charged.

As the battery is used it may fail to hold a full charge. If the battery life becomes unacceptable then contact your distributor.

SECTION 9 RS-232 OUTPUT

The TR-I Series of scales can be ordered with an optional RS-232 output.

9.1 Basic information

Specifications:

RS-232 output of weighing data
ASCII code
8 data bits
No Parity
Baud rate: 1200bps

9. 2 print out format

Format 1

NO. 3
G.W. 20.50kg
N.W. 18.30kg

Format 2

NO. 3
N.W. 18.30kg

Format 3

NO. 3
G.W. 20.50kg
N.W. 18.30kg

Format 4

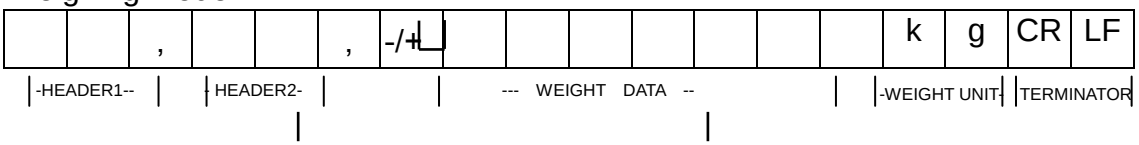
NO. 3
N.W. 18.30kg

Format 5

NO. 3
N.W. 18.30kg
TOTAL 60.40kg

9. 3 continuously output protocol

con1: weighing mode



HEADER1: ST=STABLE， US=UNSTABLE

HEADER2: NT=NET， GS=GROSS

SECTION 10 CALIBRATION

1) Turn off the power if you are using the scale.
2) Then turn on the power, press **UNIT** key at the same time during selfchecking.
3) Display shows "PASS", waiting for input password.
4) Input password, **HOLD** key; **UNIT** key and **ZERO** key. then press the **ZERO** key to enter in.
5) Display will shows "F0 d iu", press **DIV** key until display shows "F8 CAL"
6) Press **ZERO** key to enter calibrate, display shows "ULoAd"
7) Empty the hook, after **STABLE** indicator on, press **ZERO** key to sure, after some seconds, zero calibrate completely.
8) After zero calibrate, display shows span calibrate mass weight, you can change this weight, (use **HOLD** key to move the active digit, use **DIV** key to increment a digit), after input calibrate mass weight, press **ZERO** key to sure, display show "LoAd", add calibrate mass on hook, after stable indicator on, press **ZERO** key again, please wait some seconds, span calibrate completely.

SECTION 11 ERROR CODES

ERROR CODES	DESCRIPTION	RESOLUTION
- - oL -	Over range	Remove weight from the scale. If the problem persist contact your dealer or Taiwan scale for assistance.
Err 4	Zero Setting Error	The scale was outside the normal auto zero setting range (4% of capacity), please check the hook is empty, or calibrate zero point again.
Err 5	Keyboard Error	Keyboard short, please check the key wire or whether the key have mechanical problem
Err 6	A/D out of range	The values from the A/D converter are outside the normal range. Remove weight from the scale if overloaded, make sure the pan is attached. Indicates the load cell or the electronics may be faulty. If the problem persist contact your dealer or Taiwan scale for assistance.
Err 10	No single has been received	Check if the distance is too long or the environment is too bad.
Err 11	The protocol is not right or suitable	Update the new protocol.
Lo bA	Battery low	Charge battery immediately

TAIWAN SCALE is a international supplier with more than 30 years experience in the production and sale of electronic weighing equipment.

Products are supplied and serviced from our company locations in the CHINA, TAIWAN and distributed through a world wide dealer network, also we make OEM/ODM products for world wide customer.

TAIWAN SCALE's products are predominantly designed for the laboratory, medical, business and industrial markets.

The product range can be summarised as follows:

- Counting scales for general industrial and warehouse applications
- Digital weighing/check-weighing scales
- High performance platform scales with extensive software facilities including parts counting, percent weighing etc.
- Digital electronic scales for medical use
- Retail price computing scales
- Floor scales
- Truck scale
- Crane scales
- Weighing indicator for platform scales, floor scales and truck scales
- Hand push and pull gauge
- Customize auto weighing systems

TAIWAN SCALE and their distributors offer a full range of technical services such as on site and workshop repair, preventative maintenance and calibration facilities.

TAIWAN SCALE operates an approved quality management system and is certified to ISO9001:2000.

Visit our Website at: **www.taiwanscale.com**

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